Journal of Non-Crystalline Solids 97&98 (1987) vii–xxvi
North-Holland, Amsterdam

CONTENTS

Preface vii

Obituaries

David Adler 1935–1987 ix
Ifor G. Austin 1928–1986 x
V.L. Bonch-Bruevich 1923–1987 xi

List of Committees xiii

List of Sponsors xiv

Contents Parts I and II xv

Opening address, B.T. Kolomiets xxxv

PART I

Section 1: Mott Lecture

Problems in the understanding of electronic properties of amorphous silicon
Stuke, J. 1

Section 2: Plenary Lectures (Invited papers)

Transport in the electron tail states of amorphous silicon
Spear, W., C. Cloude, D. Goldie and P. LeComber 15

Quantum wells and superlattices
Hirose, M. and S. Miyazaki 23

Influence of electron–electron interaction on hopping conduction of disordered systems
Efros, A.L. and B.I. Shklovskii 31

Structural order and dynamics of amorphous Si and Ge
Lannin, J.S. 39

Photostructural changes in chalcogenide glasses
Lyubin, V.M. 47

Quasi-crystals and amorphous materials
Mackay, A.L. 55

Section 3: Nature of Gap States (Focused session 1)

Gap-state distribution in n-type and p-type a-Si:H from optical absorption
Pierz, K., B. Hilgenberg, H. Mell and G. Weiser 63

0022-3093/87/$03.50 © Elsevier Science Publishers B.V.
(North-Holland Physics Publishing Division)

Observation of different types of dangling bonds and their photo-creation in a-Si:H, as elucidated by ENDOR measurements
Yokomichi, H. and K. Morigaki 67

Capacitance studies of optical and thermal transitions from mobility gap states in hydrogenated amorphous silicon
Gelatos, A.V. and J.D. Cohen 71

Energy level and photoionization cross section of gap states in a-Si:H
Okushi, H. and K. Tanaka 75

Gap states in amorphous silicon – dangling and floating bonds
Pantelides, S.T. 79

Dangling bond as a variable-*U* defect in a-Si:H
Zvyagin, I.P. 83

Photomodulation of the photoelectric yield from a-Si:H
Hirabayashi, I., K. Winer and L. Ley 87

Creation and saturation of light-induced defects in a-Si:H
Ohsawa, M., T. Hama, T. Akasaka, H. Sakai, S. Ishida and Y. Uchida 91

The nature and energies of gap states in a-Si:H *(Organizer's summary)*
Fritzsche, H. 95

Section 4: Tail States (Focused session 2)

Exponential tails in the density of states
Economou, E.N., N. Bacalis and M.H. Cohen 101

Electron spin resonance of shallow defect states in amorphous silicon and germanium
Stutzmann, M. 105

Infrared photomodulation spectroscopy of band tail states in a-Si:H and a-Si:F
Vardeny, Z. and M. Olszakier 109

Theory of carrier relaxation in band tails of disordered semiconductors
Grünewald, M. and B. Movaghar 113

Picosecond optical studies of electron and hole thermalization in the band tails of a-Si:H
Thomsen, C., Z. Vardeny and J. Tauc 117

Charge carrier relaxation in intrinsic hydrogenated amorphous silicon: a systematic investigation of the picosecond decay of photoinduced absorption
Gustafson, T.L., R.W. Collins, D.M. Roberts and H. Scher 121

Spectrally resolved transient photomodulated absorption in a-Si:H
Stoddart, H.A., Z. Vardeny and J. Tauc 125

Transient hopping conductivity in amorphous semiconductors with non-equilibrium occupation of localized states
Arkhipov, V.I., A.I. Rudenko and S.D. Shutov 129

Relation between system parameters and measured drift mobilities in amorphous semiconductors
Adriaenssens, G.J. and G. Seynhaeve 133

On the theory of band tail relaxation in disordered systems
Esser, B. 137

Picosecond photoinduced index changes in a-Si:H and related alloys measured by transient grating experiments
Noll, G. and E.O. Göbel 141

Femtosecond spectroscopy in amorphous silicon and silicon–germanium alloys
Fauchet, P.M., D. Hulin, A. Migus, A. Antonetti, J.P. Conde and S. Wagner 145

Band tails in amorphous semiconductors *(Organizer's summary)*
Tauc, J. 149

Section 5: Medium Range Order (Focused session 3)

Specification of medium range order in amorphous materials
Lucovsky, G. 155

Medium-range order in amorphous materials: documented cases
Elliott, S.R. 159

Medium range order in amorphous silicon and germanium
Tsu, R. 163

Probing medium-range order in chalcogenide glasses by neutron scattering and optical spectroscopy
Price, D.L., S. Susman and A.C. Wright 167

Topological order in a-$Si_{1-x}Ge_x$:H alloys: experimental X-ray diffraction study and theoretical simulation in relation with composition
Cuniot, M., J. Dixmier and R. Mosseri 171

Computer generation of structural models of hydrogenated amorphous silicon
Uda, T. 175

Structure and the existence of the first sharp diffraction peak in amorphous germanium prepared in UHV and measured in-situ
Viščor, P. 179

A study of the structure of $(GeS_2)_{1-x}(Sb_2S_3)_x$ glasses
Červinka, L., O. Smotlacha and L. Tichý 183

Atomic-scale structure of amorphous and liquid sulphur
Popescu, M. 187

Investigation of the structural disorder fluctuations in a-Si:H films by coupled X ray diffractometry and photodeflection spectroscopy
Essamet, M., B. Hepp, N. Proust and J. Dixmier 191

Surface reconstruction in amorphous solids
Manaila, R. and R. Grigorovici 195

Atomic and electronic structure of amorphous carbon based on the large-scale CRN model
Drchal, V. and J. Málek 199

Intermediate range order in elemental amorphous and liquid semiconductors
Lannin, J.S. 203

Comments on medium-range ordering in non-crystalline solids *(Organizer's summary)*
Červinka, L. 207

Section 6: Theory of Localization and Scaling (Focused session 4)

Physical aspects of localization
Mott, N.F. 213

Principal results of the mode coupling approach to the conductor–insulator transition in strongly disordered systems
Götze, W. and P. Thomas 217

Numerical investigation of the Anderson transition
Schreiber, M. 221

The metal–semiconductor transition in three-dimensional disordered systems – reanalysis of recent experiments for and against minimum metallic conductivity
Möbius, A. 225

Recursion method in the theory of localization – application to two coupled disordered chains, and to electron–phonon interaction in one disordered chain
Weller, W., M. Kasner and F. Stefani 229

Low energy excitations of interacting Anderson localized electrons
Hadley, B., M. Green, M. Pollak, R. Chicon and M. Ortuño 233

Hard gaps in localized interacting systems
Chicon, R., M. Ortuño, B. Hadley, M. Green and M. Pollak 237

The localisation length and the density of states in correlated random systems
Johnston, R., B. Kramer, J. Masek and L. Schweitzer 241

Mode coupling theory for the dephasing and diffusion of excitations
Thomas, P. and A. Weller 245

Conductance of a series of metallic rings in a magnetic field
Bulka, B.R. 249

The scaling theory of localization – is it of importance for amorphous semiconductors? *(Organizer's summary)*
Kramer, B. 253

Section 7: Physics and Chemistry of Deposition (Focused session 5)

Reactions on substrate for preparation of silicon-networks from precursors, SiF_nH_m $(n + m < 3)$
Shimizu, I. 257

Surface reactions of radicals during deposition of amorphous semiconductors by photochemical decomposition of molecular hydrides
Perrin, J. and B. Allain 261

Differences between direct and remote plasma enhanced CVD
Lucovsky, G. and D.V. Tsu 265

Initial nucleation of a-Si:H: an in situ ellipsometry study of the effect of deposition procedure
Collins, R.W. and J.M. Cavese 269

Characteristics of a-Si:H films deposited by electron cyclotron resonance plasma CVD
Hayama, M., K. Kobayashi, S. Kawamoto, H. Miki and Y. Onishi 273

Effects of substrate bias on structure and properties of a-Si:H films deposited by ECR microwave plasmas
Herak, T.V., T.T. Chau, S.R. Mejia, P.K. Shufflebotham, J.J. Schellenberg, H.C. Card, K.C. Kao and R.D. McLeod 277

New way for high-rate a-Si deposition
Bárdoš, L., V. Dušek and M. Vaněček 281

Physics and chemistry of deposition *(Organizer's summary)*
Tanaka, K. 285

Section 8: Device Physics (Focused session 6)

High efficiency a-Si solar cells with a superlattice structure p-layer and stable a-Si solar cells with reduced Si–H_2 bond density
Kuwano, Y., H. Tarui, T. Takahama, M. Nishikuni, Y. Hishikawa, N. Nakamura, S. Tsuda, S. Nakano and M. Ohnishi 289

Improvement of carrier injection efficiency in a-SiC p-i-n LED using highly-conductive wide-gap p,n type a-SiC prepared by ECR CVD
Kruangam, D., T. Toyama, Y. Hattori, M. Deguchi, H. Okamoto and Y. Hamakawa 293

Very simple a-Si:H TFT fabrication process for LCD-TV application
Le Contellec, M., F. Maurice, J. Richard, B. Vinouze and F. Richou 297

Large-area a-Si:H TFT arrays for printing, input scanning and electronic copying applications
Chuang, T.C., L.E. Fennell, W.B. Jackson, J. Levine, M.J. Thompson, H.C. Tuan, R. Weisfield, T. Hamano, H. Itoh, T. Ozawa and S. Tomiyama 301

A simplified analytic model for double injection applied to amorphous silicon alloys
Silver, M. and V. Cannella 305

Microcrystalline and wide band gap p^+ window layers for a-Si p-i-n solar cells
Hollingsworth, R.E., P.K. Bhat and A. Madan 309

High performance TFT of a-Si:H on a SiO_2 dielectric
Griep, S., E. Lüder and T. Kallfa, SHS; 313

Amorphous silicon superlattice thin film transistors
Tsukude, M., S. Hata, Y. Kohda, S. Miyazaki and M. Hirose 317

The resolution of a-Si thin film transistor instability mechanisms
Powell, M.J., C. van Berkel and I.D. French 321

Focused session on device physics *(Organizer's summary)*
LeComber, P.G. 325

Section 9: Structure

Structure of amorphous semiconductors by small angle scattering *(Invited paper)*
Bellissent, R. 329

Medium range order models of a-Si:H and small angle neutron scattering
Menelle, A. 337

Quasiperiodic a-Si:H/a-SiN_x:H multilayer structures
Chen, K., G. Mao, D. Feng, Y. Yan, J. Du, Z. Li, H. Chen and H. Fritzsche 341

Local structure of dopants in compensated and singly-doped amorphous silicon
Boyce, J.B., S.E. Ready and C.C. Tsai 345

Recent developments with the sillium model
Wooten, F. and D. Weaire 349

Fast diffusion of interstitial deuterium in amorphous silicon
Abeles, B., L. Yang, D. Leta and C. Majkrzak 353

Annealing of weakly bound deuterium in a-Si:D,H
Fedders, P.A., V.P. Bork, D.J. Leopold, R.E. Norberg, J.B. Boyce and J.C. Knights 357

Characterization of the structure in hydrogenated amorphous silicon by means of ^{119}Sn Mössbauer spectroscopy
Myoren, H., P. Shrestha, T. Imura and Y. Osaka 361

EXAFS in amorphous silicon alloys *(Invited paper)*
Mobilio, S. and A. Filipponi 365

Computer simulations of preparation and annealing of amorphous solids *(Special presentation)*
Yonezawa, F., S. Nosé and S. Sakamoto 373

Modelling the structure of amorphous As_2S_3: Helical structures and a lack of planarity
Pfeiffer, G., M.A. Paesler and J.M. Lee 379

Computer-generated models of a-$SiSe_2$: evidence for a glass exhibiting medium-range order
Gladden, L.F. and S.R. Elliott 383

Light induced structural changes in amorphous semiconductors
Abdulhalim, I., R. Beserman and Yu.L. Khait 387

Topological phase transitions in amorphous semiconductors *(Invited paper)*
Tanaka, K. 391

Variations of the silicon network of amorphous silicon studied by Raman spectroscopy
Hishikawa, Y., K. Watanabe, S. Tsuda, S. Nakano, M. Ohnishi and Y. Kuwano 399

Vibrational correlation function in amorphous covalent solids
Filipponi, A., F. Evangelisti and S. Mobilio 403

Local order in silicon–germanium alloys and at silicon–germanium heterojunctions by analysis of Ge 3d core levels
Evangelisti, F., F. Boscherini, R. Cimino, F. Patella, P. Perfetti and C. Quaresima 407

Local structure in non-crystalline Sb–S semiconductors
Dalba, G., P. Fornasini, G. Giunta, E. Burattini and A. Tomasi 411

Effect of wrong bonds on the electronic structure of amorphous III–V alloys
Mosseri, R. and J.P. Gaspard 415

Structural relaxation in amorphous Si_xSn_{1-x} semiconductors
Por, A., A. Audouard, N. Maloufi, G. Marchal and M. Gerl 419

Evidence of two-phase structure in amorphous silicon oxides produced by $N_2O + SiH_4$ glow-discharge decomposition
Fortunato, G. and D. Della Sala 423

Amorphous semiconductors prepared by rapid solidification
Dembovsky, S.A., L.M. Ilizarov and E.A. Chechetkina 427

Electronic structure studies of amorphous and microcrystalline germanium
Godet, C., B. Drevillon and C. Senemaud 431

EXAFS study of the local atomic structure in amorphous InP
Flank, A.M., P. Lagarde, D. Udron, S. Fisson, A. Gheorghiu and M.L. Theye 435

The structure of As_2S_3 thin films
Cimpl, Z., F. Kosek and F. Lukeš 439

Ion implantation and subsequent annealing influence on some properties of As_3Se_2 films
Tsvetkova, T., B. Amov, A. Djakov, S. Balabanov and I.H. Wilson 443

Local structure and cohesive energy in Ge_xSe_{1-x} glasses
Tronc, P. 447

Optical, electrical, mechanical and photoelectronic properties of hard amorphous carbon films
Pajasová, L., J. Zemek, J. Janča and K. Navrátil 451

Section 10: Theory

Dynamical response of electrons in a disordered solid to a very fast light pulse
Velický, B. and A. Pieczonková 455

Electronic properties of a realistic model of amorphous silicon
Bose, S.K., K. Winer and O.K. Andersen 459

Defect dynamics and the properties of amorphous silicon
Pantelides, S.T. 463

Theories of defects in amorphous semiconductors *(Invited paper)*
Bar-Yam, Y. and J.D. Joannopoulos 467

Generalized master equations and the phonon-assisted hopping
Čápek, V. 475

A theoretical interpretation of thermostimulated conductivity in amorphous semiconductors
Gu, B., Z. Xu and B. Dong 479

Density of states within the Coulomb gap
Möbius, A. and M. Richter 483

Theory of nonradiative recombination in amorphous semiconductors
Baranovskii, S.D., V.G. Karpov and B.I. Shklovskii 487

Electronic structure of 5d transition metal impurities in amorphous silicon
Wilke, S., J. Mašek and B. Velický 491

The doping mechanism in amorphous silicon
Nichols, C.S., L.H. Yang and C.Y. Fong 495

Carbon in silicon: a cluster calculation
Barrio, R., J. Tagueña-Martinez and E. Sansores 499

Charge distribution in amorphous silicon clusters. Quantum chemical study combined with ring statistics
Kugler, S. and G. Náray-Szabó 503

Electronic structure of hydrogenated/fluorinated a-$Si_{1-x}Ge_x$ alloys
Agrawal, B.K. and S. Agrawal 507

Vibrational excitations in a-Si_3N_4:H(D) alloys
Agrawal, B.K., P.S. Yadav and B.K. Ghosh 511

A theoretical self-consistent model for electronic and optical properties of hydrogenated amorphous alloys
Zdetsis, A.D. 515

Effect of s-p-d hybridization on the EXAFS phase-shifts in amorphous germanium
Manolescu, A., D. Macovei, R. Manaila, R. Grigorovici and P. Pausescu 519

Frequency dependent conductivity and the time distribution function of hopping events
Schirrmeister, F., H. Kahnt and A. Feltz 523

Optical transitions involving deep levels in amorphous semiconductors
Balagurov, L.A., E.M. Omeljanovsky, A.G. Petukhov, M.N. Starikov and M.G. Foigel 527

Section 11: Transport

Conduction at a mobility edge *(Invited paper)*
Mott, N.F. 531

The prefactor of the DC conductivity in amorphous semiconductors
Overhof, H. 539

Determination of the microscopic prefactor of the conductivity of a-Si:H using temperature dependent field-effect measurements
Djamdji, F., P.G. LeComber, R. Schumacher, P. Thomas and K. Weber 543

Theory of high-field hopping transport *(Invited paper)*
Böttger, H. and D. Wegener 547

Moderate-field variable-range hopping transport
Talamantes, J., M. Pollak and R. Baron 555

Features of carriers at very high electric fields in a-Se and a-Si:H
Juška, G., K. Arlauskas and E. Montrimas 559

The energy distribution of localised states, and the mobilities of free carriers in a-Si:H, from time of flight and other measurements
Marshall, J.M., R.A. Street, M.J. Thompson and W.B. Jackson 563

Surface photovoltage in a-Si:H
Foller, M., J. Herion, W. Beyer and H. Wagner 567

Diffusion length measurements in a-Si:H using the steady state photocarrier grating technique
Ritter, D., E. Zeldov and K. Weiser 571

Photoluminescence and photoconductivity of a-Si:H at high electric fields
Jahn, K., R. Carius and W. Fuhs 575

Triplet exciton recombination in silicon-based amorphous semiconductors
Yoshida, M. and K. Morigaki 579

Study of localized states in glow discharge a-Si:H from thermally stimulated currents
Valentin, F., F. Vaillant and A. Deneuville 583

Transient behaviour of photoconductivity of a-Si:H in dual beam measurements
Qiu, C., S. Qian and D. Han 587

Picosecond non-geminate carrier recombination in a-Si:H
Fischer, R., E.O. Göbel and G. Noll 591

The electron relaxation and photoluminescence decay of the a-Si:H
Han, R., K.L. Ngai, X. Guan and J. Ruvalds 595

Transient photoconductivity studies in a-Si:H
Pickin, W., D. Mendoza and J.C. Alonso 599

Effects of deep trapping and band bending on the transient photodecay in a-Si:H
Barclay, R.P., J.L. Brebner, G. Perluzzo and G. Seynhaeve 603

Influence of light absorption depth in transient photocurrent experiments
Seynhaeve, G., R.P. Barclay and G.J. Adriaenssens 607

Electron and hole kinetics in amorphous silicon
Werner, A. and M. Kunst 611

Features of the behavior of photoluminescence intensity and relaxation in a wide range of temperature for a-Si:H
Kosarev, A.I., A.A. Andreev, A.V. Zherzdev and A.B. Pevtsov 615

Ambipolar transport in amorphous semiconductors in the relaxation regime
Ritter, D., E. Zeldov and K. Weiser 619

Frequency dependent loss in glow discharge amorphous silicon
Shimakawa, K., A.R. Long, M.J. Anderson and O. Imagawa 623

The geometry problem for photocarrier drift mobilities in a-Si:H
Parker, M.A. and E.A. Schiff 627

Magneto-resistance studies in forward biased hydrogenated amorphous silicon p/i/n devices
Wang, K., Y. Sawan and M. Silver 631

Influence of annealing on the DC-electrical transport in undoped amorphous silicon
Tóth, L., D.-S. Kim and H.-S. Pak 635

Respective influence of dangling bonds and band tails as recombination centers in amorphous semiconductors
Vaillant, F., D. Jousse and J.-C. Bruyère 639

Electronic properties of Ga-doped amorphous silicon
Gross, V., H.W. Grueninger, E. Niemann and R. Fischer 643

Spectral photocurrent–voltage characteristics of a-Si pνn and pπn diodes
Kusian, W., H. Pfleiderer and B. Bullemer 647

Light-induced photoluminescence fatigue in a-Si:H
Han, D., M. Yoshida and K. Morigaki 651

Theory of sweep-out experiments: a new spectroscopy for the electronic density of states in doped hydrogenated amorphous silicon films
Branz, H.M., D. Adler and M. Silver 655

ESR and Mössbauer spectroscopy of iron-doped Ag–As–S and Ge–Sb–Se glasses
Chepeleva, I.V., Z.U. Borisova, Yu.G. Vlasov and E.A. Bychkov 659

Characterization of deep defect levels in amorphous selenium by optical methods
Imamura, S., Y. Kanemitsu, T. Hayano and T. Kitamura 663

Anomalous electrical conduction in amorphous In_2Se_3 films
Watanabe, I. and T. Sekiya 667

Dark conductivity of amorphous $Ge_{0.08}Te_{0.92}$ thin films
Misrar, A., J.-M. Saiter and C. Vautier 671

Steady-state photoconductivity in Bi- and Sb-modified Ge_2Se_7 glasses
Adriaenssens, G.J., P. Nagels and G. Seynhaeve 675

Properties of amorphous Zn_3P_2
Deiss, J.L., B.E. Drissi, M. Robino, M. Tapiero, J.P. Zielinger and R. Weil 679

Hopping conduction and creation of a Coulomb gap by a magnetic field in InP
Biskupski, G. and A. Briggs 683

Reversible metastable defect centres in amorphous arsenic triselenide
Barclay, R.P., M. Sarr and J.L. Brebner 687

Section 12: Gap States

^{1}H-ENDOR-detected ESR spectra of P- and B-doped a-Si:H
Yamasaki, S., S. Kuroda, J. Isoya and K. Tanaka 691

Energetic distribution of dangling bond states in undoped amorphous silicon
Nitta, Y., K. Abe, K. Hattori, H. Okamoto and Y. Hamakawa 695

Density of gap states in a-Si:H determined by spectrally resolved low temperature IR-photoconductivity
Walloch, F. and L. Ley 699

Surface states and the intrinsic valence band tail in a-Si:H
Winer, K. and L. Ley 703

Subgap absorption in a-Si:H using photoluminescence absorption spectroscopy (PLAS)
Ranganathan, R. and P.C. Taylor 707

Determination of the density of states in amorphous silicon from thermostimulated conductivity measurements
Landweer, G., R. Schreutelkamp, H. Simons, J. Bezemer and W.F. van der Weg 711

a-Si:H gap states investigated by CPM and SCLC *(Invited paper)*
Kocka, J., M. Vanecek and F. Schauer 715

Energy level of neutral dangling-bond center (D^0) in undoped a-Si:H determined by isothermal capacitance transient spectroscopy under high temperature
Mori, K., H. Okushi and K. Tanaka 723

Comparative study of the optical absorption spectra of amorphous hydrogenated silicon derived from photothermal deflection spectrosocopy and photoconductivity measurements
Chahed, L., G. Vuye, M.L. Thèye, Y.M. Li, K.D. MacKenzie and W. Paul 727

Study of surface/interface and bulk defect density in a-Si:H by means of photothermal deflection spectroscopy and photoconductivity
Favre, M., H. Curtins and A.V. Shah 731

Evaluation of the density of states at a-Si/SiN_x/Cr capacitors by means of the quasi-static slow ramp *CV*-method
Böhm, M., S. Salamon and Z. Kiss 735

Determination of localized state energy distribution in a-Si:H by modulated photocurrent
Fortunato, G. 739

Dark decay of surface potential: measurement of the density of localized states in highly resistive amorphous silicon alloys
Nakayama, Y., H. Kita, T. Takahashi, S. Akita and T. Kawamura 743

The bulk electron states spectroscopy by temperature-modulated space-charge-limited currents (TM-SCLC)
Schauer, F. and O. Zmeškal 747

The density of gap states in single- and multi-layer of a-Si:H measured by optical absorption and infrared stimulated current
Han, D., W. Li, S. Quian and C. Qiu 751

Frequency dependence of the ESR in UHV deposited a-Si
Thomas, P.A. and M. Rosso 755

Measurement of surface photovoltage in high-rate deposited a-Si:H films and comparison with photothermal deflection spectroscopy and conductivity data
Schwarz, R., S. Goedecker, T. Muschik, N. Wyrsch, A.V. Shah and H. Curtins 759

Capacitance studies of ion-implanted n-type hydrogenated amorphous silicon
Michelson, C.E., J.D. Cohen and J.P. Harbison 763

Author index Parts I and II xxxix

Subject index Parts I and II lxix

Part II

Contents Parts I and II vii

Section 13: Stability

Thermal equilibrium processes in doped amorphous silicon *(Invited paper)*
Kakalios, J. and R.A. Street 767

Equilibrium between band tails and dangling bonds in *a*-Si:H
Smith, Z E., S. Aljishi and S. Wagner 775

Trapping, recombination, and metastable states in n-type *a*-Si:H
Main, C., J. Berkin, R. Russell, A. Merazga and J.M. Marshall 779

Thermal creation of metastable defects in a-Si:H
Redfield, D. 783

Dynamics of Staebler–Wronski effect in hydrogenated amorphous silicon
Kazanskii, A.G., E.P. Milichevich and V.S. Vavilov 787

Influence of light-induced defects on the transient photoconductivity in a-Si:H
Werner, A. and M. Kunst 791

The creation of metastable defects in a-Si:H films by high dose irradiation with keV-electrons
Schneider, U., B. Schröder and F. Finger 795

Influence of metastable dangling bonds and donors on the D.C. conductivity of hydrogenated amorphous silicon
Meaudre, R. and M. Meaudre 799

Capacitance studies of thermal equilibrium changes in n-type amorphous silicon
Hack, M., R.A. Street and M. Shur 803

Fast hydrogen diffusion in amorphous silicon
Petrova-Koch, V., H.P. Zeindl, J. Herion and W. Beyer 807

Stable and metastable states in phosphorus-doped a-Si:H by temperature-modulated space-charge-limited current (TM-SCLC) method
Schauer, F., O. Zmeškal, M. Nesládek and J. Kočka 811

Instability of gap states in phosphorus doped a-Si:H, demonstrated in DLTS
Lányi, Š., V. Nádaždy and J. Kočka 815

Deep states in a-Si:H – changes with light soaking and applied stress
Kočka, J., M. Vanecek, M. Nesládek, Q.-D. Tring, J. Stuchlik, O. Stika and A. Triska 819

The temperature dependence of the photoconductivity of n-type a-Si:H and the effect of Staebler–Wronski defects
Vomvas, A. and H. Fritzsche 823

Section 14: Spectroscopic Studies

Changing of density of states in amorphous silicon nitride at degradation of its electric properties using soft X-ray spectroscopy
Agafonov, A.I., E.P. Domashevskaya, E.N. Desyatirikova, V.N. Seleznev, V.A. Terekhov and G.G. Eldarov 827

Physical properties of amorphous silicon alloy films: comparison with electronic structure calculations
Zdetsis, A.D., D. Girginoudi, G. Kiriakidis, Z. Hatzopoulos, A. Thanailakis and A. Christou 831

Infrared ellipsometry study of the vibrational properties of a-Si:H, a-SiC:H and a-SiGe:H ultrathin films
Benferhat, R. and B. Drevillon 835

Properties of the Si–H bond-stretching absorption band in a-Si:H grown by remote plasma enhanced CVD (RPECVD)
Tsu, D.V. and G. Lucovsky 839

X-ray spectroscopic study of the electronic structure of amorphous SiN_x:H ($0.04 \leqslant x \leqslant 0.44$)
Zahorowski, W., R. Knop, H. Watanabe and G. Wiech 843

Photoemission and density of states in amorphous silicon
Berner, H., P. Munz, E. Bucher, F. Kessler and S.M. Paasche 847

Photoemission study of a-Si:H/a-SiN_x:H interface formation
Yang, L., B. Abeles, W. Eberhardt, D. Sondericker, H. Stasiewski and Z. Fu 851

Section 15: Heterostructures and Interfaces

Picosecond photoinduced electronic and acoustic effects in a-Si:H based multilayer structures
Grahn, H.T., Z. Vardeny, H.J. Maris, J. Tauc and B. Abeles 855

Frequency gaps for zone-folded acoustic phonons in amorphous superlattices
Santos, P.V., L. Ley, J. Mebert and O. Koblinger 859

Theory of band lineups in amorphous semiconductor heterojunctions
Robertson, J. 863

Time-resolved optically detected magnetic resonance in a-Si:H/a-$Si_{1-x}N_x$:H superlattices
Ogihara, C., H. Ohta, M. Yamaguchi, H. Takenaka and K. Morigaki 867

Evidence of quantum size effects in a-Si:H/a-SiC_x:H superlattices. Observation of negative resistance in double barrier structures
Pereyra, I., M.N.P. Carreno, R.K. Onmori, C.A. Sassaki, A.M. Andrade and F. Alvarez 871

Defect formation in amorphous silicon doping superlattice films
Cohen, J.D., J.M. Essick, C.E. Michelson and J.P. Harbison 875

Study of in-plane carrier transport in a-Si:H/a-SiC:H multilayers by transient grating technique
Hattori, K., T. Mori, H. Okamoto and Y. Hamakawa 879

Photoluminescence properties of a-(Si/SiN):H multilayers: a comparison with bulk alloys
Hopkinson, M., T.M. Searle, P.G. LeComber and R.A. Gibson 883

Structural stability of amorphous semiconductor superlattices
Miyazaki, S., Y. Ihara and M. Hirose 887

Band offsets for the silicon nitride/amorphous silicon interface: implications for charge transport and trapping in silicon nitride
Jackson, W.B., M.D. Moyer, C.C. Tsai and J. Marshall 891

Structure of hydrogenated Si–Ge and Si–SiN_x amorphous semiconductor heterojunctions
Sette, F., B. Abeles, L. Yang, A. McDowell, D. Norman and C.H. Richardson 895

Internal photoemission studies on M/a-Si:H interface
Peng, S., Z. Su and Z. Lin 899

Charge trapping effects in amorphous silicon/silicon nitride thin film transistors
Hepburn, A.R., C. Main, J.M. Marshall, C. van Berkel and M.J. Powell 903

Photo-induced and bias induced metastable states in the transverse conduction of pnpn doping-modulated a-Si:H superlattices
Takada, J. and H. Fritzsche 907

Photo and bias effects in coplanar conductance of doping-modulated amorphous silicon superlattices
Choi, S.-H., B.-S. Yoo, C. Lee and J. Jang 911

New results on photoluminescence spectra of a-Si:H/a-SiN_x:H multilayer structures
Feng, X., H. Liu, W. Tang and Z. Li 915

Time resolved photoluminescence in a-Si:H: a comparison between single layers and superlattices
Wang, W.C. and H. Fritzsche 919

Electrical properties of a-Si:H/a-SiC_x:H multilayers
Zhang, Z.Y., R.G. Cheng and H. Fritzsche 923

Absorption in amorphous silicon doping-modulated multilayers
Durny, R., S. Ducharme, J. Viner, P.C. Taylor and D. Haneman 927

Gap states and recombination processes in one-dimensionally ordered and disordered a-Si:H/a-$Si_{1-x}N_x$:H multilayer films
Yamaguchi, M., H. Ohta, C. Ogihara, H. Yokomichi, K. Morigaki, S. Nonomura and S. Nitta 931

Photomodulation spectroscopy of states in the gap in phosphorus doped a-Si:H and a-Si:H/a-SiN_x:H multilayer structures
Zhou, T.X., Z. Vardeny and J. Tauc 935

Carrier transport mechanisms in a-Si:H,F/a-Si,Ge:H,F superlattices
Conde, J.P., S. Aljishi, D.S. Shen, M. Angell and S. Wagner 939

a-Si:H/ZnS superlattice
Morimoto, A., K. Mizushima and T. Shimizu 943

The structural stability of reactively-sputtered amorphous multilayer films
Honma, I., H. Hotta, K. Kawai, H. Komiyama and K. Tanaka 947

Formation of platinum silicide on hydrogenated amorphous silicon
Beyer, W., C.E. Gatts, J. Herion, W. Losch and H. Wagner 951

Amorphous nickel silicides prepared by magnetron co-sputtering
Rogachev, N.A., V. Šmíd, J.J. Mareš and J. Krištofik 955

The interfaces a-Si:H/Pd and a-Si:H/ITO: structure and electronic properties
Hoheisel, M., N. Brutscher, H. Oppolzer and S. Schild 959

Schottky barrier junctions of hydrogenated amorphous silicon–germanium alloys
Matsuura, H., H. Okushi and K. Tanaka 963

Photoelectric characterization of interface between a-Si:H and a-SiN_x:H
Shirakawa, K. and J. Shirafuji 967

Characterization of a-$Si_{1-x}C_x$:H/a-Si:H and a-SiN_x:H/a-Si:H heterojunctions by photothermal deflection spectroscopy
Asano, A., T. Ichimura, M. Ohsawa, H. Sakai and Y. Uchida 971

The effect of interface alloying on the optical absorption of a-Si:H/a-Si_xN_{1-x}:H multilayers
Mui, K. and F.W. Smith 975

Effect of hydrogen on SiO_x and SiO_x–Si interface
Quaresima, C., P. Perfetti, E. Paparazzo, M. Capozi, C. Vaccarezza, B. Russo and C. Coluzza 979

The effect of the gap DOS in a-Si on the properties of the a-Si/c-Si heterojunction
Xu, Z.Y., W. Chen, B.F. Zhao, C.A. Wang, F.Q. Zhang and J.Y. Wang 983

Electrical and photoelectrical properties of crystalline semiconductor–ChVS heterojunction controlled by ChVS modification
Sarsembinov, Sh.Sh., O.Yu. Prikhodko, S.Ya. Maksimova, S.A. Dzakelov and V.L. Averyanov 987

Section 16: Silicon Alloys

Optical properties of amorphous Si:N:H alloys *(Invited paper)*
Searle, T.M., W.A. Jackson and I.G. Austin 991

Optical constants and microstructure of amorphous hydrogenated silicon–carbon alloy films
Mui, K., D.K. Basa, R. Corderman and F.W. Smith 999

Substitutional and interstitial doping of amorphous silicon nitride
LeComber, P.G., B. Dunnett, W.E. Spear and R. Gibson 1003

Photoemission in SiO_x alloys
Bell, F.G. and L. Ley 1007

Electronic states in the gap of amorphous silicon–germanium alloys
Stutzmann, M., C.C. Tsai and R.A. Street 1011

Defect states in a-$Si_{1-x}Ge_x$:H studied by electron spin resonance
Finger, F., W. Fuhs, G. Beck and R. Carius 1015

Improvement of photoconductive response in amorphous silicon–germanium alloys produced from fluorides instead of hydrides
MacKenzie, K.D., J.H. Burnett, J.R. Eggert, Y.M. Li and W. Paul 1019

Steady state and transient transport in a-Si,Ge:H,F alloys
Aljishi, S., V. Chu, Z E. Smith, D.S. Shen, J.P. Conde, D. Slobodin, J. Kolodzey and S. Wagner 1023

Structural and electronic properties of silicon-based amorphous alloys *(Invited paper)*
Beyer, W. 1027

Transport and relaxation properties of photo-induced carriers in amorphous Si-based films with artificial potential structure
Shirai, H. and I. Shimizu 1035

IR and H evolution spectrum of a-SiN_x:H with different nitrogen content
Wang, S.-L., R.-G. Cheng, M.-W. Qi and P.-X. Cai 1039

Bonding properties of amorphous SiN_x:H films with low density of Si–H bonds
Hasegawa, S., H. Anbutu and Y. Kurata 1043

Optical properties and spin densities of SiN_x(:H) films
Piggins, N., E.A. Davis and S.C. Bayliss 1047

Quantitative infrared characterization of plasma enhanced CVD silicon oxynitride films
Rostaing, J.C., Y. Cros, S.C. Gujrathi and S. Poulain 1051

Transient and steady-state photoconductivity in a-$Si_{1-x}Ge_x$:H,F alloys
MacKenzie, K.D. and W. Paul 1055

Experimental determination of hydrogenated amorphous silicon and amorphous silicon–germanium alloy electron transport parameters from time of flight experiment
Vanderhaghen, R. and C. Longeaud 1059

Study of gap states in a-SiGe:H alloy system by below-gap modulated photocurrent spectroscopy
Tsutsumi, Y., S. Sakata, K. Abe, Y. Nitta, H. Okamoto and Y. Hamakawa 1063

Photoluminescence of doped and undoped amorphous Si/Ge alloys
Carius, R., F. Finger and W. Fuhs 1067

Characterization of highly photoconductive amorphous silicon germanium alloys prepared by DC glow discharge
Weller, H.C., F. Kessler, E. Lotter, C.E. Nebel, S.M. Paasche and G.H. Bauer 1071

a-$Si_{1-x}Ge_x$:H alloys for solar cells
Mariucci, L., F. Ferrazza, D. Della Sala, M. Capizzi, F. Evangelisti and U. Coscia 1075

Valency control of p-type a-SiC:H having the optical band gap more than 2.5 eV by electron–cyclotron resonance CVD (ECR CVD)
Hattori, Y., D. Kruangam, T. Toyama, H. Okamoto and Y. Hamakawa 1079

Defects and recombination in a-$Si_{1-x}C_x$:H films
Liedtke, S., K. Jahn, F. Finger and W. Fuhs 1083

Correlation of structure and optical properties of a-$Si_{1-x}C_x$:H alloys
Sotiropoulos, J. and G. Weiser 1087

Band-structure and the average-gap model in a-$Si_{1-x}C_x$:H alloys
Solomon, I., M.P. Schmidt, C. Senemaud and M. Driss-Khodja 1091

Section 17: Tetrahedral Materials

The electronic structure of amorphous carbon *(Invited paper)*
O'Reilly, E.P. 1095

Preparation and properties of amorphous Cd–Si–As thin films
Derbyshire, H.S., S.J. Gurman and E.A. Davis 1103

Defect states in amorphous InP
Theye, M.L., A. Gheorghiu, D. Udron, C. Senemaud, E. Belin, J. Von Bardeleben, S. Squelard and J. Dupin 1107

Electronic transport in glassy Si-backbone polymers
Stolka, M. and M.A. Abkowitz 1111

Section 18: Chalcogenide and Other Glasses

Absorption edge of the amorphous $(GeS_2)_x(As_2S_3)_{1-x}$ and $(GeSe_2)_x(As_2Se_3)_{1-x}$ systems under hydrostatic pressure
Onari, S., T. Inokuma, H. Kataura and T. Arai 1115

Quantitative measurements of structural changes associated with photo-darkening in a-As_2S_3 films
Yang, C.Y., J.M. Lee, M.A. Paesler and D.E. Sayers 1119

Photodarkening effect in $Cu_x(As_{0.4}Se_{0.6})_{1-x}$ and $Cu_x(As_{0.4}S_{0.6})_{1-x}$
Liu, J.Z. and P.C. Taylor 1123

Compositional dependence of photodissolution kinetics in amorphous As–S films
Ewen, P.J.S., A. Zakery, A.P. Firth and A.E. Owen 1127

New insight into recombination and thermalization in As_2Se_3
Weiser, G. and J. Ristein 1131

Formation of gap edges and shift of Fermi level in As_2S_3-based glass alloys with addition of germanium
Andriesh, A.M. and D.I. Tsiulyanu 1135

n-Type conductivity in chalcogenide glasses and layers *(Invited paper)*
Frumar, M. and L. Tichý 1139

Hot photoluminescence in chalcogenide glasses
Murayama, K. 1147

A new method of measuring optical phonons in amorphous solids: analysis of the mean square relative displacement of EXAFS
Yang, C.Y., M.A. Paesler and D.E. Sayers 1151

Quantum shift of the optical absorption edge in ultra thin amorphous hydrogenated germanium layers
Yang, L. and B. Abeles 1155

Non-linear light absorption in Sb–S–I glasses
Lisitsa, M.P., I.D. Turjanitsa and I.V. Fekeshgazi 1159

Space charge spectroscopic studies of localized states in glassy semiconductors *(Invited paper)*
Abkowitz, M. 1163

Intrinsic localized defect states in a-Se associated with dihedral angle distortions
Wong, C.K., G. Lucovsky and J. Bernholc 1171

NMR studies of defect states in glassy selenium
Gladden, L.F. and S.R. Elliott 1175

Paramagnetic radiation defects in chalcogenide glasses and glassy Se
Chepeleva, I.V. 1179

Below gap photoinduced paramagnetism in chalcogenide glasses
Strom, U., J.A. Freitas, Jr. and S.G. Bishop 1183

Far infrared absorption spectra of chalcogenide amorphous semiconductors and the spatial charge fluctuation
Matsuishi, K., H. Kasamura, S. Onari and T. Arai 1187

Optical properties of spin-coated amorphous chalcogenide thin films
Hajto, E., P.J.S. Ewen, R. Belford, J. Hajto and A.E. Owen 1191

Photo-excited effects in impurity doped double layer chalcogenide films
Katyal, S.C., S. Okano, T. Bando and M. Suzuki 1195

Temperature dependence of the photoluminescence in a-Si:H and a-As_2S_3
Yamaguchi, A., K. Murayama, T. Tada and T. Ninomiya 1199

Optical properties of amorphous cadmium arsenide
Zdanowicz, L. and B. Jarząbek 1203

Model for the non-linear intensity dependence of photostructural changes in amorphous semiconductors
Hajto, J. and I. Janossy 1207

The mechanism of high-temperature photo-structural transformation in low dimensional systems
Pirogov, F.V. and K.K. Shvarts 1211

The mechanism of giant photo-contraction in obliquely-deposited thin films of amorphous germanium chalcogenides
Spence, C.A. and S.R. Elliott 1215

Photobleaching and thermal-bleaching effects in amorphous Ge–S films
Kawaguchi, T., S. Maruno and K. Masui 1219

Model of photoinduced changes of optical properties in amorphous layers and glasses of Ge–Sb–S, As–S and As–Se systems
Vlček, M. and M. Frumar 1223

Photoinduced changes of optical properties of amorphous chalcogenide films at ambient air pressure
Tichý, L., H. Tichá and K. Handlíř 1227

Photo-induced phenomena in transport properties of a-As_2Se_3
Naito, H., T. Termiane, M. Okuda and T. Matsushita 1231

Kinetics of laser-induced phenomena in glassy As_2S_3
Lee, J.M. and M.A. Paesler 1235

Investigations of the mechanism of photo-dissolution of silver in amorphous germanium chalcogenide thin films
Rennie, J.H.S. and S.R. Elliott 1239

Photodoping of As–S films with group II metals
Bedel'bayeva, G.E., A.V. Kolobov, B.T. Kolomiets, V.M. Lyubin and M.A. Taguirdzhanov 1243

Investigation of photodoping kinetics in amorphous Ge-chalcogenides
Ressel, R., G. Kluge and P. Süptitz 1247

Section 19: Liquids

Temperature dependence of the structure of liquid eutectic Ge–Te alloys
Neumann, H., W. Hoyer, W. Matz and M. Wobst 1251

Defects in l- and a-chalcogenides
Kawazoe, H., Y. Watanabe and M. Yamane 1255

A study of thermal analysis of amorphous solid and supercooled liquid selenium–thallium
Kotkata, M.F., M.H. El-Fouly, M.A. Morsy and S.A. Fayek 1259

Liquid arsenic: a Peierls distortion in the liquid – experimental results and computer simulation
Bellissent, R., C. Bergman, A. Pellegatti, R. Ceolin and J.P. Gaspard 1263

The dielectric function of laser-produced molten Si
Fauchet, P.M. and K.D. Li 1267

Short-range order in $Ge_xS_yBr_z$ glassy and liquid samples
Koudelka, L., M. Pisárčik, N.I. Krylov and V.A. Ananichev 1271

Liquid–crystalline and glassy–crystalline transition of Se–I samples
Kenawy, M.A., M.M. Abd-Elaal, H.A. Zayed and L.I. Soliman 1275

Optical properties of molten chalcogenide iodides of arsenic
Hedges, A.R. and A.D. Caplin 1279

Structure of liquid II–IV compounds: CdTe
Gaspard, J.P., C. Bergman, C. Bichara, R. Bellissent, P. Chieux and J. Goffart 1283

Impurities in liquid semiconductors, studied by TDPAD technique
Draijer, A., M.A. Haghani, M. von Hartrott, K. Ott, C.A. Paulick, D. Quitmann and B. Sauer 1287

Section 20: Devices and Preparation

Analysis of amorphous silicon thin-film transistors
Hack, M. and M. Shur 1291

Phosphorus diffusion effect on off-current of a-Si thin film transistors
Sasano, A., H. Matsumaru, Y. Kaneko and T. Tsukada 1295

Device physics of a-Si:H charge-coupled devices
Matsumura, M., S. Sekine, J. Yue and Y. Takeuchi 1299

Crucial parameters and device physics of amorphous silicon alloy tandem solar cells
Yang, J., T. Glatfelter, R. Ross, R. Mohr, J.P. Fournier and S. Guha 1303

Recombination in thin film Si:H p-i-n solar cells
Turner, G.B., R.J. Schwartz, J.W. Park and J.L. Gray 1307

A study of electroluminescence in a-$Si_{1-x}C_x$:H and a-Si:H devices with various structures
Zhang, F.O., Y.F. Zhang, Z. Liu and G.H. Chen 1311

Amorphous and microcrystalline silicon bipolar heterojunction transistors
Symons, J., K. Baert, J. Nijs and R. Mertens 1315

Visible light emission from reverse biased amorphous silicon carbide p-i-n structures
Alvarez, F., H.L. Fragnito, P. Prieto and I. Chambouleyron 1319

Dual beam time-of-flight experiments on a-Si:H $p\pi n$ and $p\nu n$ diodes
Karg, F., E. Günzel and K.v. Klitzing 1323

Effect of microinhomogeneities on collection efficiency spectra in (p-i-n) a-Si:H junctions
Füstöss-Wégner, M., D.-S. Kim, H.-S. Pak, Gy. Zentai and L. Pogány 1327

Pre-formed $J-V$ and $C-V$ characteristics of a-Si:H p^+ni junctions
Choi, W.K., S. Reynolds, J. Hajto, S.M. Gage, A.E. Owen, A.J. Snell, I.M. Flanagan, M.J. Rose, F.J. Djamdji, P.G. LeComber and W.E. Spear 1331

Application of amorphous silicon for picosecond optoelectronic switching
Bergner, H., V. Brückner, M. Lenzner and W. Nowick 1335

Reversible dangling-bond generation in amorphous silicon thin-film transistors
Schropp, R.E.I., A.J. Boonstra and T.M. Klapwijk 1339

a-Si:H TFTs and their application in linear image sensors
Brunst, G., H. Harms, J. Ashworth, K.H. Rosan and K. Kempter 1343

AC photoconductivity of amorphous GaP diodes made by reactive evaporation under implantation of hydrogen ions
Onuki, M., K. Tsubusaki and H. Kubota 1347

Erasable laser recording characteristics in a Ga–Se–Te optical disk medium
Okuda, M., F.S. Jiang, J.C. Rhee and T. Matshushita 1351

Study of light-induced change in a-SiH solar cells and films by intense light pulse irradiation
Yamagishi, H., M. Yamaguchi, M. Kondo, Y. Hosokawa, K. Tsuge, T. Nakayama and Y. Tawada 1355

Characterization of junctions in a-Si:H image sensors
Kaneko, S. and H. Uchida 1359

Lateral photovoltaic effect on amorphous silicon junctions
Su, Z., J. Liu, S. Peng and Q. Fei 1363

Guiding principle for preparing highly photosensitive Si-based amorphous alloys *(Invited paper)*
Matsuda, A. and K. Tanaka 1367

Optical and electrical properties of a-Si:H films grown by remote plasma enhanced chemical vapor deposition (RPECVD)
Parsons, G.N., D.V. Tsu and G. Lucovsky 1375

Catalytic chemical vapor deposition method to obtain high quality amorphous silicon and silicon–germanium
Matsumura, H. 1379

The growth of glow discharge hydrogenated amorphous silicon
Bhat, P.K., H. Chatham, Y.H. Shing and J.W. Perry 1383

Effect of substrate temperature on the properties of P-doped a-Si:H films prepared at high deposition rate
Ueda, M., T. Imura and Y. Osaka 1387

Physical properties of amorphous silicon, prepared by HF silane decomposition at high substrate temperature
Konkov, O.I., E.I. Terukov, V.Kh. Kydoyarova and A.A. Babayev 1391

Effect of hydrogen dilution on structure of a-Si:H prepared by substrate impedance tuning technique
Matsuo, S., M. Ueda, T. Imura and Y. Osaka 1395

Effects of U.V. light on the transport properties of a-Si:H films during their growth
Martins, R., N. Carvalho, E. Fortunato, A. Maçarico, M. Santos, I. Baia, M. Vieira and L. Guimarães 1399

In-situ investigation of the early stage of the growth of a-Si:H on silica and tin dioxide substrates
Antoine, A.M. and B. Drevillon 1403

Low temperature nitridation and hydrogenation of Si films with NH_3: a photoemission study
Bischoff, J.L., L. Kubler and D. Bolmont 1407

Hydrogenation of amorphized silicon studied by UPS
Muller, D., F. Ringeisen, D. Bolmont and J.J. Koulmann 1411

Electronic and optical effects of boron doping by plasma assisted diffusion in a-SiC:H
Mohring, H.-D., M.B. Schubert, G. Schumm and G.H. Bauer 1415

Boron incorporation in hydrogenated amorphous silicon films prepared by chemical vapor deposition
Flint, J.H., H.M. Branz, C.J. Harris, J.S. Haggerty and D. Adler 1419

Optical emission profiles used for a-Si:H deposition rate calculation
Bugmann, G. 1423

A PDS study of hydrogenated amorphous silicon films deposited by RF glow-discharge from silane–hydrogen mixtures
Van Oort, R.C., M.J. Geerts, J.C. van den Heuvel and J.S. Payson 1427

GD amorphous silicon obtained from trichlorsilane
Popescu, C., T. Stoica, A. Dragomir, A. Nenciu, M. Nicolae, P. Ivan and S. Ionescu 1431

Amorphous hydrogenated silicon prepared by ion beam assisted reactive evaporation – preparation and basic properties
Salyk, O., F. Schauer, O. Zmeškal, P. Sládek, K. Zubík and J. Polcer 1435

Surface structure of glow discharge a-Si:H: Implications for multilayer film growth
Collins, R.W. and J.M. Cavese 1439

Laser plasma deposition and film structure of covalently bound materials
Richter, A. and W. Pompe 1443

High-rate deposition of photosensitive a-SiC:H using a carbon source of C_2H_2
Nakayama, Y., S. Akita, M. Nakano and T. Kawamura 1447

Deposition condition of hydrogenated amorphous carbon films having quasi-onedimensional structures
Nitta, S., S. Nonomura, R. Takagi, N. Kojima and A. Yasuda 1451

Fluorinated amorphous silicon–germanium alloys deposited from disilane–germane mixture
Guha, S., J.S. Payson, S.C. Agarwal and S.R. Ovshinsky 1455

The bulk amorphous A^3B^5 semiconductor: Technological and physical aspects
Demishev, S.V., Yu.V. Kosichkin, A.G. Lyapin, N.E. Sluchanko, M.M. Aleksandrova, V.I. Larchev, S.V. Popova and G.G. Skrotskaya 1459

Closing address
Grigorovici, R. 1463

Author index Parts I and II 1473

Subject index Parts I and II 1503